

2.39 Lead-Acid Battery Manufacturing Plants

2.39.1 Applicability and Designation of Affected Facility

The affected facility to which the provisions of this source category apply is any process listed below at a lead-acid battery manufacturing plant that produces or has the capacity to produce in one day (24 hours) batteries containing an amount of lead equal to or greater than 5.9 metric tons (6.5 short tons), subject to Section 1.1 of the general provisions of this text.

The affected facilities covered here are:

- (1) Grid casting facility
- (2) Past mixing facility
- (3) Three-process operation facility
- (4) Lead oxide manufacturing facility
- (5) Lead reclamation facility
- (6) Other lead emitting operations

2.39.2 Test Methods and Procedures

(a) In conducting the performance tests required in Section 1.2, the owner or operator shall use as reference methods and procedures the test methods in Appendix A of this part or other methods and procedures as specified in this section, except as provided in Section 1.2(b).

(b) The owner or operator shall determine compliance with the lead standards, except lead oxide manufacturing facilities, as follows:

- (1) Method 12 shall be used to determine the lead concentration and, if applicable, the volumetric flow rate (Q_{sda}) of the effluent gas. The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30 dscf).
- (2) When different operations in a three-process operation facility are ducted to separate control devices, the lead emission concentration (C) from the facility shall be determined as follows:

$$C = \left[\sum_{a=1}^N (C_a Q_{sda}) \right] / \sum_{a=1} Q_{sda}$$

Where:

- C = concentration of lead emissions for the entire facility, mg/dscm (gr/dscf).
- C_a = concentration of lead emissions from facility "a", mg/dscm (gr/dscf).
- Q_{sda} = volumetric flow rate of effluent gas from facility "a", dscm/hr (dscf/hr).
- N = total number of control devices to which separate operations in the facility are ducted.

(3) Method 9 and the procedures in Section 1.3 shall be used to determine opacity. The opacity numbers shall be rounded off to the nearest whole percentage.

(c) The owner or operator shall determine compliance with the lead standard for lead oxide manufacturing facilities as follows:

- (1) The emission rate (E) from lead oxide manufacturing facility shall be computed for each run using the following equation:

$$E = \left(\sum_{i=1}^M C_{Pbi} Q_{sdi} \right) / (P K)$$

Where:

- E = emission rate of lead, mg/kg (lb/ton) of lead charged.
- C_{Pbi} = concentration of lead from emission point "i", mg/dscm.
- Q_{sdi} = volumetric flow rate of effluent gas from emission point "i", dscm/hr (sdcf/hr).
- M = number of emission points in the affected facility.
- P = lead feed rate to the facility, kg/hr (ton/hr).
- K = conversion factor, 1.0 mg/mg (453,600 mg/lb).

- (2) Method 12 shall be used to determine the lead concentration (C_{Pb}) and the volumetric flow rate (Q_{sd}) of the effluent gas. The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30 dsf).
- (3) The average lead feed rate (P) shall be determined for each run using the following equation:

$$P = N W / \theta$$

Where:

- N = number of lead pigs (ingots) charged.
- W = average mass of a pig, kg (ton).
- θ = duration of run, hr.

2.39.3 Monitoring of Emissions and Operations

When required, the owner or operator of any lead-acid battery manufacturing facility subject to the provisions of this source category and controlled by a scrubbing system(s) shall install, calibrate, maintain, and operate a monitoring device(s) that measures and records the pressure drop across the scrubbing system(s) at least once every 15 minutes. The monitoring device shall have an accuracy of ± 5 percent over its operating range.